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INTERDISCIPLINARY ENVIRONMENTAL LEADERSHIP

Learning and Teaching Integrated Problem Solving

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**Introduction**

Interdisciplinary problem solving is designed to produce reliable and persuasive decision making that is supported by participants and by past experience, unlike conventional approaches, which can lead to weak problem solving, inability to mobilize supporters, and ineffective policy (e.g., Clark 2011). Effective interdisciplinary leadership skills include critical thinking and judgment that integrate diverse knowledge and experience so that decision-making processes are appropriately managed and technically creditable. They offer a mix of analysis, authority, leadership, understanding, and expertise (Chrislip and Larson 1994)—the kind of leadership and problem solving that is being called for and applied ever more widely (Brunner et al. 2005).

By perceiving, promoting, and safeguarding the common interest, effective leaders inspire commitment and action through their dedication to problem solving. They understand the values and perspectives of others, encourage broad-based involvement, and sustain hope and participation. Chief among their skills is helping communities to clarify their goals, elucidate the complexity of events and social interactions, identify the conditions that underlie events and interactions, project future outcomes, and select practical alternatives. Such leadership and problem solving, a kind of genuine and special kind of interdisciplinarity, can be taught, learned, and applied to good effect.

In this chapter we discuss our 50 years’ combined experience in teaching, learning, and applying interdisciplinarity in diverse applied and academic settings, focusing largely on environmental studies, sciences, and management and policy problems. We examine the goals and challenges of our teaching, describe four complementary pedagogic designs that we have used, place them in the context of existing literature, and offer recommendations to teach, learn, and apply the method more effectively.

**Educational goals**

Our goal is to teach genuine interdisciplinary method to diverse students. We use an explicit, systematic method described by Harold D. Lasswell and colleagues more than 60 years ago, called the policy sciences (a term we use
interchangeably with interdisciplinarity). Lasswell had a pragmatic view of the way the method should be used: problem solvers must be problem oriented, analyze social and historic contexts in order to understand decision making, and be self aware of their own standpoint. The method offers a way to see problems and solutions that are practical, operable at all scales, and used to advance human dignity for all people (Lasswell and McDougal 1992).

We teach interdisciplinarity in formal classes, field trips, workshops, and applied appraisals (a form of learning-while-analyzing; see Patton 1997). Our broad goal is to help students—by which we mean not only college and university students, but also professionals, government employees, and advocates—to become leaders in real problem-solving contexts, to equip them with a method and skill set to address diverse problems (Clark 2001). We coach them in the “pragmatic and heuristic attitudes” embodied in the method and focus them on understanding complex problems and solutions in the context of serving common interests (Marvick 1977: 66). We encourage students to examine contexts thoroughly, base their learning and action on evidence, and clarify the significance of their own standpoints and perspectives in exploring problems and solutions. Many students have told us that this skill set was the most useful and practical tool from their college experiences.

Command of the method is influenced by students’ predispositions and preparedness, their focus of attention, the dominance in their education of conventional outlooks and traditional disciplines that may devalue or spur interdisciplinarity, the difficulties of clarifying their perspectives, the challenges of integrating what they know with what they can do, and confusion about the nature and significance of interdisciplinarity and problem-solving (which may seem overly theoretical at first). However, our experience has shown that most people can improve their problem solving abilities through even a little exposure to interdisciplinary method.

The goals of students are diverse. Graduate students see their basic job in graduate school as acquiring scientific knowledge and skills in one or more disciplines, which they assume will provide them with a complete tool kit for effective professional leadership. Their views, however, often change over their educational careers, especially those who take courses in genuine interdisciplinary studies, as evidenced in what they say, how they write, and how they conduct their work. Undergraduates are younger and have less of a bias toward positivistic or disciplinary problem-solving strategies. But interdisciplinarity and critical thinking are new experiences for them too, and the (anecdotally observed) cognitive changes that occur during their education show that while they accept the tenets of what they learn, they are only beginning on the road to the practice of truly interdisciplinary critical thinking.

In describing their goals, many of our students claim that they want to gain skills in translating ideas into solutions, empowering people, strategizing, and encouraging constructive technical and social change. They want to be holistic and learn integrative skills, envisioning themselves bringing together coalitions of people to solve problems collectively. Highly optimistic, smart, sociable, and articulate, they have a sense of purpose and dedication. They seek to be inclusive, flexible, experimental, and learning oriented (Clark and Mattson 2011). They look for ways to work together by talking with people, setting good examples, mobilizing others to solve problems, and gaining broad support. Many are highly skilled in technical, disciplinary, or positivistic science. Their experience is also broad, including (especially for older students) the Peace Corps, the United Nations, government work across the globe, high-profile as well as small-scale NGOs, and a multitude of national and international projects in rural and urban communities. Few aspire to be leaders in the command-and-control sense of simply telling followers what to do. Finally, they want hands-on experience. In many ways they are seeking interdisciplinarity and the skills it fosters, but often do not know it.

Our experiences in the classroom are similar to the existing literature on both undergraduate and graduate learning, concerning both interdisciplinarity and critical thinking. This literature is not extensive, and there is a great deal of exploration still to be done on student cognition and learning strategies, pedagogical goal setting, and outcomes assessment and achievement, among other areas. But on some of the basics, a picture has emerged reflecting insight about the appropriateness of interdisciplinary and critical thinking pedagogy (e.g., Szostak 2007). This chapter reflects an attempt to put into practice the theories and methods reflected in this broad literature and in the policy sciences.

Workshop and applied appraisal participants have quite different goals. These are experienced professionals, concerned with the details and complexity of everyday work and have little time to reflect, clarify their perspectives, or stand back from the blizzard of daily minutiae to get an overview of the social and decision processes of which they are a part. Many are solidly conventional, but open to learning about interdisciplinarity. The approaches we
take to maximize learning outcomes for this population reflect Patton’s (1994, 1997) research and practice on “utilization-focused” and “developmental” evaluation, methods that are explicitly designed to make both the structure and content of the method relevant to the subjects’ learning processes.

**Educational challenges**

Although many students arrive prepared to engage themselves with interdisciplinarity, there are educational and institutional challenges that must be met. First is that students do not yet share the theory and methods of genuine interdisciplinarity (see Cross 1999, Szostak 2007). They come with diverse and disciplinary backgrounds, expectations, and self-identifications. Some are quite experienced and seem predisposed to appreciate interdisciplinarity and critical thinking (Giancarlo and Facione 2001), and some have even invented a partial set of equivalencies on their own. The concepts and terms come easily to these individuals, and they tend to recognize the value in the method, despite their relative lack of experience with complex method (Ivanitskaya et al. 2002). Many, however, are not prepared to engage interdisciplinarity; some actively resist it. Most, however, ultimately become receptive and knowledgeable about what is required to apply the method skillfully (McMillan 1987).

Some students also adhere to convention, bounded by their restriction to ordinary, everyday concepts, language, and methods and a conventional and disciplinary understanding of themselves and their world (see Perry 1985, Kegan 1994). They accept “received” conditions as common sense, leading them to see complex social and decision problems in conventional terms – e.g., merely as conflict among personalities, interpersonal and inter-group politics, institutional territoriality, or funding limitations. At the graduate level, many come with a conviction, based on their educational and personal experience, that solving problems means carrying out positivistic, disciplinary operations (see Schön 1983).

Students’ focus of attention is generally limited to selected situational factors and biophysical entities (e.g., water, wildlife). Other key factors, such as social interactions (too often dismissed pejoratively as “politics”) and organizational imperatives (e.g., authority hierarchies), get short shrift or reflect an inadequate understanding of their complexity. As a result, they tend to describe and analyze trends and conditions in ecological variables while neglecting to clarify goals, make projections in social and decision-making process, or devise workable, context-specific alternatives. They overlook the importance of clarifying their own standpoint in the social processes they are analyzing. Many believe in the misleading “linear science-to-policy” model that suggests that improving decision making is a matter of increasing the amount of scientific information available to the decision process or that the public is ignorant and needs to be educated (see Pielke 2007).

Many students also find it challenging to confront their own epistemology, cognitive status, disciplinary prejudices, and conventional notions about social and decision processes, people, and values (Giancarlo and Facione 2001). This is possibly the most difficult part of learning genuine interdisciplinarity. They are also typically unable to articulate how they understand what problems are and how to solve them or to integrate knowledge for decision purposes (see Schön 1983).

Finally, there is confusion about what interdisciplinarity is. In the university setting where they are bombarded with models, theories, and methods, students often assume that interdisciplinarity is just one among many equally valid or useful theories, approaches, or paradigms about the world. In addition, many partial “equivalencies” of interdisciplinarity have been invented in the various disciplines, promoted by their authors as new or revolutionary. Adding to the confusion, multidisciplinary courses, often team taught, are also promoted as interdisciplinary. Students have no basis intellectually or experientially to compare the theoretical coherence or practical utility of various constructs. After they gain enough knowledge of interdisciplinarity they often come to see that this approach systematizes their understanding of problems and contexts, gives them a way to understand all the other models, theories, and methods, opens up the possibility for them to understand their own standpoint, and provides them with a more practical way to address problems of concern (Ivanitskaya et al. 2002). Consequently, they come to see that interdisciplinarity is actually something different from what they are being exposed to in other courses.

**Interdisciplinary framework and active learning**

No matter what the educational setting, we teach the interdisciplinary framework illustrated in table 1. In the classroom we can address the method, concepts, vocabulary, and the framework’s elements in sequence, whereas in other settings we tend to focus on “problems” first and bring in social and decision process considerations as the problem is explored. We emphasize standpoint clarification in all cases.
We generally begin by describing the challenges that confront leaders and professionals in the complex context in which the students are or will be working. If time permits, we offer an overview of social science theory about individuals in society and then illustrate the categories of social process (see categories in Table 1, below). We help students to learn methods of problem definition and clarify their standpoints, map social and decision processes, examine methods available to map, analyze, and present results, and examine social contexts and common interests. The manner in which we cover this material varies from an in-depth, explicit exploration in a semester-long class to an applied appraisal’s more limited opportunity to identify the relevance of human dignity, values, and common interest in a narrow context.

[Insert Table 1 about here]

In all settings we focus on the concept of human dignity, which begins with the value of individual people in themselves, not as a means for some other end, such as the economic value of their labor (see Mattson and Clark 2011). We also stress the need for communities to find their common interests, that is, those that are widely shared and embraced by people in a community. We coach students to assess whether they are inclusive and allow for responsible participation, whether they take into consideration valid and appropriate concerns of the participants, and whether they uphold the expectations of those who participated in good faith. This approach increases students’ capacity to appraise social processes and improve them to better serve the common interest.

We stress that an interdisciplinary approach introduces a functional understanding of problems that arise from social and decision making processes, competing myths, differing problem definitions, values and institutions, and other dynamics of social relations. The framework serves as a stable frame of reference that permits users to see and analyze any social and decision process at the level of functional relationships, especially value dynamics and outcomes. Our method helps students to develop skills in critical thinking, observation, management, and technical matters (Armspiger 1959).

We use an active, cooperative learning approach, which engages students in activities other than listening to lectures and taking notes (Cooper et al. 1990, Walker 2003). There is less emphasis on “received knowledge” and more emphasis on developing understanding, skills, and self-awareness. Active learning requires flexibility in ways to achieve individual and cooperative learning (Herreid 1998), and it requires integrating academic learning with on-the-job application (Banner and Cannon 1997). Abundant research shows the benefits of active learning. The AAC Task Group on General Education (1988) found that active learning encourages students to hear, understand, interpret, and integrate ideas better. Chickering and Gamson (1987) concluded that students learn best when they are required to talk about a subject, write about it, and apply it (Study Group on the Conditions of Excellence in American Higher Education 1984). The core principle of our conception of interdisciplinarity – that is, critical thinking about real problems – is aided by active learning strategies that encourage collaboration (Gokhale 1995).

Among the different levels of cognitive activity involved in education (Perry 1985), active learning in particular requires a “high order” of thinking, including analysis, synthesis, and evaluation, very similar to the interdisciplinarity that we teach. Understanding and applying genuine interdisciplinarity also requires a high order of thought, a special kind of “disciplined rationality” that depends on memory, comprehension, application, analysis, synthesis, and evaluation (Sheppard and Gilbert 1991).

We employ a variety of active learning methods. In the classroom, we give students questions, short exercises such as “mind mapping,” and assign critiques of current items in the news. We invite guest speakers to relate how they have used interdisciplinarity and to demonstrate specific applications. We have students do on-the-spot analyses, report to the class, and discuss them. We help them develop both planned (i.e., methodical) and unplanned (i.e., ad hoc) analytical skills. In-depth discussion of all learning strategies, lessons, and cases leaves students with much greater retention of information, more problem-solving skills, heightened self-awareness, and higher motivation than lectures (Cross 1999), even though we cannot cover as much lecture material as we might otherwise present. Most learning takes place in small groups, and we attempt to keep our enrollments under 25, ideally under 15. For larger classes, small group work is critical.

Good teachers, according to Wilen and Clegg (1986), try to phrase questions clearly, ask questions that are primarily academic yet practical, and pose lots of questions at both low and higher cognitive levels. This combination seems
to produce effective learning. Some students volunteer answers readily, but we also invite responses from those who seldom volunteer. We ask simple questions that encourage a high percentage of correct responses, we acknowledge correct responses, encourage exploration of responses that miss the mark, and probe responses to gain insight into how they arrived at their answers. Any resistance to active learning must be overcome: shy students require more encouragement, and some of our international students (at both undergraduate and graduate levels) come from educational settings in which they have never entered into open classroom discussions or given presentations before their classmates.

Student presentations, individually or in small groups, permit each student to make a unique contribution, learn and share complex material, and exercise skills in evaluation, application, analysis, synthesis, conflict resolution, and presentation (Bonwell and Eison 1991). Group efforts provide experience in team building and collective problem solving, participation by all members, interdependence, status equalization, involvement, and listening (Westberg and Jason 1996). In addition to oral presentations, our students are required to undertake substantial written work, both formal and informal, including reflective opinion pieces and analytic papers.

Four designs for interdisciplinary learning
Genuine interdisciplinary critical thinking can be taught, learned, and applied through diverse designs. Semester-long classes offer the most time to learn more formally and to conduct case-specific applications. Field trips offer hands-on experiences that bring students into direct contact with problems, the people involved, and their situations. Short workshops combine theory and cases focused on specific problems and skills. Applied appraisals can take many forms, varying from a single day of discussion to a series of meetings over months in which an explicit exploration of methods is possible and excellent command of the method and skills is required.

Interdisciplinarity represents a new way of thinking, analyzing, and understanding problems for most students, and mastering these skills makes new demands on them. We start by tailoring our teaching to students’ foci of attention, backgrounds, and perspectives with the expectation that they will engage themselves with the materials and with each other and participate actively. We encourage them to assess and discuss their evolving understanding of the course material. We spend considerable one-on-one time with most students and groups.

Courses
One of the best ways to teach interdisciplinarity is through a formal college or university course. A semester allows time to develop the theoretical concepts, develop the skills and methods, demonstrate their application, and give students a chance to analyze and present a case of their own using the analytic framework, either individually or as part of a team.

Students’ initial interest is often as much about biology as it is about applying interdisciplinary problem solving to the problems of species and ecosystem restoration, conservation, or sustainability, for example. So we spend considerable time in defining problems and teasing apart their preconceived notions about science, policy, ethics, and other areas of concern. We strive to help students integrate their coursework with their experience and interests outside the classroom and to develop a broad range of key problem-solving skills for their future professional work.

Keeping in mind the intellectual development necessary to accomplish interdisciplinary analysis, common pressures brought to bear on environmental leadership, and the appropriateness of our teaching methods to students of differing ages and levels of experience, our courses are designed, first, to introduce students to comprehensive and integrated methods of thinking about social problems and proposing solutions that affect our natural heritage and, second, to help students gain greater control over these methods by applying them to particular problems. We help students to grasp critical thinking skills by explicitly using and reflecting on the use of genuine interdisciplinarity in practice. In a sense, our courses are exercises in self-reflection as well as seminars on theory and practice, simultaneously challenging the students to learn about themselves as they develop skills in interdisciplinarity.

Collectively, in our overtly interdisciplinary courses we have taught nearly 1,000 students over the past three decades. The course work they produce attests to their engagement in the method and skills. All of these courses receive strong, positive evaluations from most students, who typically describe them as demanding, rewarding, and unlike any other courses or any other approaches to theory and method. Although some of the feedback we get reflects frustration with the approaches and demands of the courses, generally the evaluations show that the courses are highly valuable to students. Overall, the student demand is for exercises that help them to develop their
interdisciplinary thinking and problem-solving skills, and we both commonly hear from students years later, reflecting on the value of the experience.

Field trips
Field trips are ideal vehicles to help participants develop interdisciplinary problem-solving skills, but here the framework is presented not in a comprehensive, systematic way but as supporting of interdisciplinarity in practice. This is in some ways more challenging because students are not urged to move beyond conventional thinking in the forceful, systematic guided way that they are in the classroom.

Clark and Ashton (1999, 2004) described the benefits of field trips in preparing students to be broad-based, practical problem solvers. As part of an academic course, field trips put students on the front line in contact with diverse professionals and participants in situations that are often laden with competition and conflict. Students meet the actual people who are affected by a problem, those responsible for creating it, and those who hope to resolve it. In one field trip to Ecuador, for example, students met an older blind man and his grandson begging on village streets, women trying to wash clothes in a muddy, six-inch-wide stream next to a road in the high Andes, and a young man who had lost both arms in an agricultural accident who was begging for food. These experiences dramatically brought home to the students the human dimensions and costs of policy and management decisions. Through field trips students can learn what is involved in on-the-ground management, compare their classroom learning with the workings of real cases, hone their integrative abilities, and develop insight and judgment without the real-life costs of being wrong. They give students the opportunity to exercise their skills in critical thinking, observation, management, and technical matters.

Field trips are typically scheduled visits to one or more field sites to examine specific problems, lasting one day to two weeks, sometimes including repeated visits. The trips focus on identifying and addressing real management and policy problems in practical ways. Pre-trip preparation includes gathering knowledge about the site and understanding participants’ values. During the trips we visit all relevant sites, interview key people in the communities, government, and NGOs, and appraise the ongoing decision-making process through which participants try to achieve their goals. After the trips the students evaluate and discuss their experiences, write papers, make presentations to the class, and share their reports with people at the field site and in peer-reviewed publications (Clark et al. 2009).

In the rare case, student field trip participants become the “experts” in one or another area. This occurred when Wallace and his students first visited and then became participants in a riparian restoration project in rural Pennsylvania. As a result of the students’ expertise in interdisciplinary method, they were ultimately perceived by others, including municipal officials and nongovernmental conservation practitioners, as the de facto experts in “marketing” the interdisciplinary nature of the project to the community in order to address what the municipality considered to be negative public perceptions of the project. The students developed and wrote an outreach plan for the project that they subsequently implemented with the local municipality and other organizations.

Students, instructors, and local participants have judged the concentrated experience of field trips to be extremely valuable. However, students are less able to grasp and use interdisciplinarity in this format, however, the value of first-hand experience with people cannot be overstated. By examining people and their perspectives, the values at stake for each of them, students are helped in their efforts to clarify their own standpoints about the problems at hand.

Workshops
Workshops for working professionals are an effective way to help people develop problem-solving skills, especially in the face of complex, large-scale environmental problems (Mattson et al. 2006). Workshops can help professionals move beyond narrow technical outlooks by articulating and strengthening new ways to synthesize information, think critically and creatively, and solve problems (Sullivan 1995). We have substantial experience leading professional workshops on interdisciplinarity.

Like courses, workshops require that instructors undertake considerable preparation in advance—working with participants, developing shared expectations, and discussing content and methods. In the Greater Yellowstone and Canadian workshops, for example, Clark met with participants in advance to build relationships, preview what would be covered, and familiarize herself with the issues or problems that participants wanted to address. Standard
adult education techniques were used, such as two-way communication and asking participants for advice and clarification on technical and other matters. Attendees were treated as equals, as professionals in different lines of work. Because many of the issues were highly contentious, Clark tried to reduce conflict and maintain mutual respect. Conversations were kept deliberate, organized, and analytic, even though discussions were open and free ranging as experienced participants typically offered rich examples. Interdisciplinarity was used more or less explicitly to help illustrate the concepts and terms and their utility in understanding and solving actual problems. These workshops gave attendees a stable frame of reference, a language to use to talk about problems in sophisticated ways, and practice at analysis much like that offered to students in the classroom. Workshops can build social capital and have the added advantage of bringing together professionals who might not otherwise interact or whose only contact may have been at volatile public meetings where they were on opposite sides of an issue.

Typically taught over one to three days, workshops may consist of lectures, readings, case analyses, presentations, and discussions, although the content is focused on specific issues. They begin with an introduction and overview of interdisciplinarity in somewhat conventional terms, keeping remarks brief and mixing conventional concepts and language with new vocabulary and ideas. Ideally, participants are then divided into teams to give them hands-on experience in analyzing cases and reporting to the group for critique and discussion. The effectiveness of workshops is increased when they are followed up with additional workshops and continuing discussions and when participants are experienced and inclined toward reflection.

The workshops always end with an appraisal. Feedback is typically positive and substantive. Attendees generally want more repetitions of case analyses and applications to give them more exposure to interdisciplinarity’s methods and more experience in their use. They recommend more discussion of the concepts and categories of the interdisciplinary framework. They are often curious about why certain concepts are included and others that they consider important are not. They want to learn to command the terms and language in order to communicate better with other professionals as well as laymen. They express a need for more agency support for improved problem solving, indicating that there is little support on the job for interdisciplinary analysis. They typically want follow-up workshops. They want to tackle existing conservation problems and they want to get more of the actual players in real issues in the room and use this approach with them. Overall, there appears to be a huge latent demand among professionals to better understand how interdisciplinarity can help them solve diverse, real-world problems.

**Applied appraisals**

Appraisal has much in common with the workshop approach, except that it is typically undertaken as an interview, discussion, or collaboration between the person conducting the appraisal and those who are providing the information that is being appraised (e.g., Clark 2008). Applied appraisals share the workshop format’s focus on issues of concern to the participants, the targeting of specific audiences and problems, and the promotion of better conservation outcomes. They are also designed to encourage self-reflection, self-awareness, and a greater degree of understanding of the participants’ place in an active and ongoing social process (Patton 1994). Applied appraisals are not academic exercises; they are designed to empirically provide information on social and decision processes for the purposes of improving or better illuminating those processes (Wallace 2003). Conducted in response to conditions that require attention or correction, they combine a demand on the participants to undertake applied learning about an issue with a challenge to be reflective and introspective in appraising their professional practice.

The use of interdisciplinarity in these appraisals is implicit. There is no attempt to teach or promote an explicit understanding as described in the literature or as used in the courses, workshops, or field trips. Rather, the approach is to seek a narrower goal: to help participants become more aware of their observational standpoint in the social or decision process of which they are a part and more aware of their relationship to the processes at hand. If this is accomplished, it results in a greater empowerment for those participants in that process. Follow-up to these appraisals has been anecdotal, but has included responses that highlight the benefits of the method, including descriptions of the conversations as “totally cathartic” and “unlike any experience in my professional life.” Other participants have noted that “no one has ever asked me to think about my work in this way” and “no one has ever asked me questions like this before.” Another anecdotal measure of success was that, as participants became engaged in the process, one-on-one or small group conversations that were initially intended to take 60 to 90 minutes sometimes took several hours or in rare cases multiple days. From their initiation as interviewer-driven evaluative conversations, they became experiences driven by their subjects’ buy in to the applied appraisal process. We have undertaken hundreds of these conversations in our careers and consider them a key way to model interdisciplinary skills and methods to a substantial population of practitioners whom we would not otherwise reach.
Conclusion
Our goal has been to create a transformative experience for students in learning the basic skills of interdisciplinarity and applying them to environmental problems. Our thinking on what constitutes such an experience has changed over time. In Poncelet’s (2001) description of theory on personal transformation through interaction, for instance, he notes that problem-solving experiences—such as courses, workshops, field trips, and appraisals—can and do lead to personal transformation. Transformation might be explained as coming about in predisposed students through a combination of high-quality interaction and reflection. It includes an extra-personal level (involving changes in understanding and relating to things beyond the self) and an intra-personal level (involving changes to one’s own conceptualizations). In their discussion of cognitive psychology and epistemology, Maturana and Varela (1987: 231) describe this as a basic change in the “organization and coherence in daily life of this ongoing flow of reflections that we call consciousness and that we associate with our identity.” In the contexts in which we work, we also call it leadership development (see Kegan 1994).

Participants in college and university classes, field trips, workshops, and applied appraisals in interdisciplinarity and leadership need to be supported though continuing contact. The establishment in recent years of professional societies that support and promote the development of interdisciplinary students, scholars, and practitioners is critical. The Society of Policy Scientists (established 1995), Social Science Working Group of the Society for Conservation Biology (est. 2003), and Association for Environmental Studies and Sciences (est. 2008), are representative of important efforts to build community in this way. These societies’ interest in comparing teaching approaches and results, sharing syllabi and other teaching resources online, hosting workshops at their professional meetings, working with one another on initiatives of collective interest and importance, and publishing collections of cases, experiences, and reflections on learning and practice in their peer-reviewed journals are all milestones in advancing interdisciplinarity. They are also all directly responsible for growing and enriching the community of interdisciplinary leaders concerned with the manifest problems facing nature and society.

It is clear that interdisciplinarity can facilitate development of leadership and that it can be taught and used in multiple formats to good effect. In a few days to several months, students can gain insight and skill in critical thinking, observation, management, and technical matters. Based on our first-hand experience over many years and across diverse settings, the interdisciplinary approach helps professionals, analysts, managers, politicians, decision makers, advocates, the public, and students (as they look ahead to their careers) to take active, informed, and responsible leadership roles in solving complex social and policy problems. The establishment of professional societies dedicated to furthering these approaches reflects a collective understanding of the severe limitations and practical hazards of being locked into narrow, conventional methodological perspectives, institutional settings, cultural contexts, or professional viewpoints. There is a growing awareness that we must understand contexts of time and place and the demand from all segments of society for people to be more rational, practical, and humane in their dealings with complex problems—characteristics that interdisciplinarity can help them achieve.

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Literature Cited


